January 7, 1966

Dr. K. Frei
c/o Sandoz A. - G.,
Basel
SWITZERLAND

Dear Dr. Frei:

Since I wrote you last I have had the opportunity of working on a time shared on-line system namely the Q32 Computer at the System Development Corporation at Santa Monica with which I can communicate by teletype. As a program to exercise this facility I wrote another version of the calculation of molecular formulas from mass numbers. I am enclosing a copy of this program which may be of some interest to you. It should be very nearly as efficient as the rather larger program I sent you earlier and as you will see it has of course many fewer instructions. I believe you will have no difficulty whatever in translating this into ALGOL. The program is written in TINT a subset of the JOVIAL language which I believe has been rather widely publicized. In any event except for the lead and print instructions and for the type declaration the language is essentially ALGOL.

The algorithm is based on a rescaling of the mass numbers to the base H = 1.000. On this basis every other species of atom contributes a mass defect as defined on instruction line 21. The error-bounds to this number are MDL and MDH. The program then consists of allocations to H, and fittings of the remaining atoms both to the integer residue and to the mass defect. If you have any difficulties please let me know.

Sincerely yours,

Joshua Lederberg
Professor of Genetics

JL:eif

Enclosures